



PATENT APPLICATION
Attorney Docket No. A3200-US-NP

APR
JAW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Raymond M. Ruthenberg et al.

Application No.: 10/642,410

Filed: 08/15/2003

Examiner: Eugene Lee Kim

Confirmation No.: 1479

Art Unit: 3721

Title: **BOOKLET MAKER WITH CREASE ROLLS
HAVING A SLIP CLUTCH**

CERTIFICATE OF MAILING

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Francie S. LePore

Sir:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

LETTER

Enclosed herewith is an original Appellants' Brief on Appeal in the above-identified application. An oral hearing is not requested.

Please charge the fee for filing of the Appeal Brief to Xerox Corporation, Deposit Account No. 24-0025. Two duplicate copies of this letter are enclosed.

Respectfully submitted,



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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND
INTERFERENCES

In re the Application of

Raymond M. Ruthenberg et al.

Confirmation No. 1479

Application No.: 10/642,410

Examiner: Eugene Lee Kim

Filed: 08/15/2003

Docket No.: A3200-US-NP

For: **BOOKLET MAKER WITH CREASE ROLLS HAVING A SLIP CLUTCH**

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BRIEF ON APPEAL

Appeal from Group 3721

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal and the present application is Xerox Corporation, by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 014401, Frame 0422-0423.

II. STATEMENT OF RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1, 3-12 are on appeal.

Claims 1, 3-12 are pending.

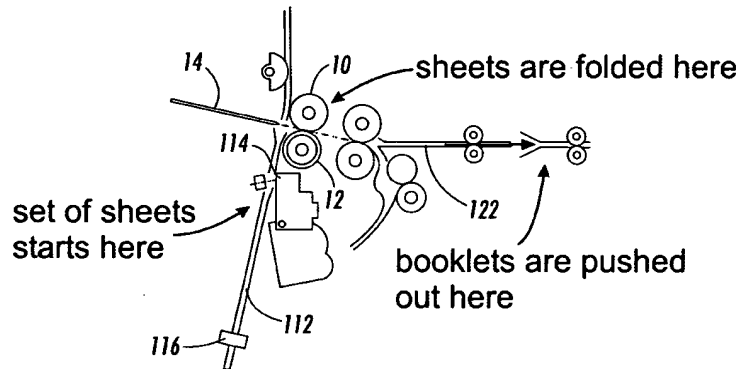
Claim 2 was canceled.

IV. STATUS OF AMENDMENTS

No Amendment After Final Rejection has been filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

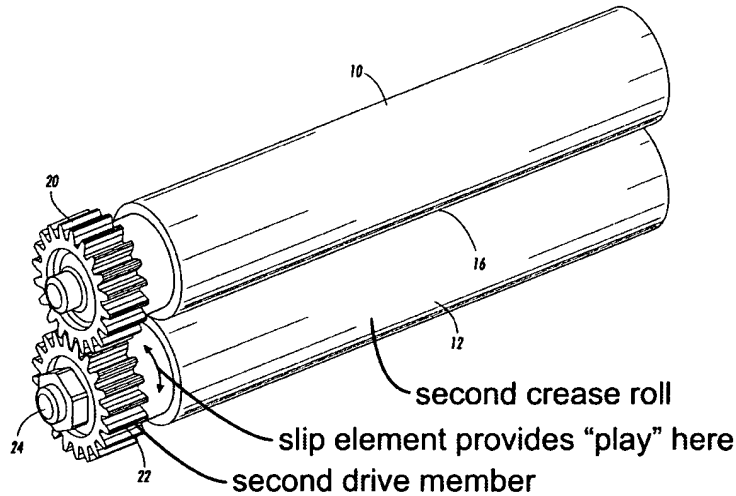
The claims under appeal relate to a booklet maker, which folds a plurality of sheets into a booklet by driving the sheets through a nip formed by two crease rolls. A general overview of a booklet maker can be seen in this detail of Figure 1 as filed:



In brief, and as described at page 3, line 26- page 4, line 10 of the Specification as filed, printed sheets such as from a digital printer are accumulated in slot 112. When enough sheets to form a booklet are collected, blade 14 pushes **all** of the sheets, through a midline thereof, through crease rolls 10, 12, so that a folded booklet emerges through path 122.

As explained at length in the Specification as filed starting at page 4, line 29, a practical problem is caused by the sudden changes in frictional coefficients among the sheet surfaces when *a plurality of sheets* are pushed through the nip *at once*: the sheets (such as the cover of a magazine and the adjacent set of pages) are liable to slide against each other during the folding step, resulting in a crumpled booklet, particularly with regard to the cover of the booklet.

To address this “crumpled cover” problem, the claimed invention proposes each crease roll 10, 12 being driven by respective drive members, in the illustrated embodiment gears 20, 22:



In the illustrated embodiment, a slip element 24, such as a slip clutch, is operatively disposed between the second drive member 22 and the second crease roll 12. The recited ***slip element between the gear and the roll***, as explained in the Specification, allows some “play” in the motion of one of the crease rolls during folding and thus overcomes the problem of the “crumpled cover.”

Claims 1 and 3-5 are directed to an apparatus for folding sheets, including a slip element; claims 6-12 are directed to a method of folding a plurality of sheets.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are presented for review:

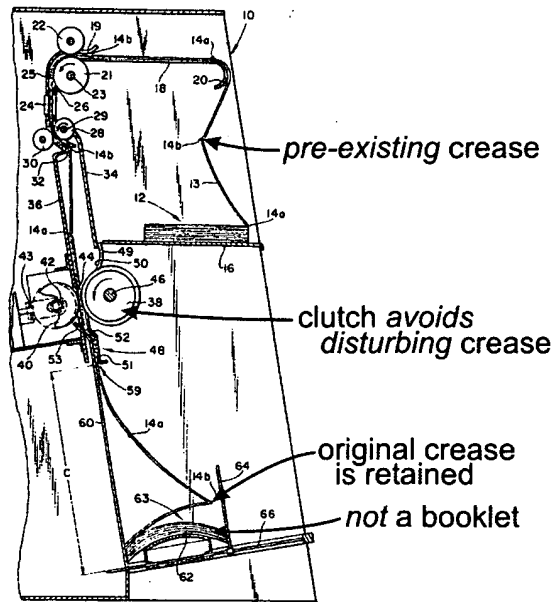
Claim 1 and its dependent claims 3-5 have been rejected under 35 U.S.C. §103 over Reeder in view of Hamilton and further in view of Wakabayashi.

Claim 6 and its dependent claims 7-12 have been rejected under 35 U.S.C. §103 over Reeder in view of Hamilton.

VII. ARGUMENTA. Claims 1 and 3-5 Would Not Have Been Obvious Over Reeder in View of Hamilton and Wakabayashi

Claim 1 and its dependent claims 3-5 have been rejected under 35 U.S.C. §103 over Reeder in view of Hamilton and Wakabayashi (claim 2 was previously cancelled, but the limitation of the originally-filed claim 2 was incorporated into claim 1). Reeder is cited for showing the use of a slip clutch in conjunction with a roller in an apparatus for folding sheets. Reeder, as stated by the Examiner, does not show creasing rollers, but creasing rollers are shown in Hamilton. Wakabayashi shows the use of a creasing blade.

The apparatus in the primary reference, Reeder, is not a booklet maker, or even a folding apparatus, at all. As mentioned at column 1, lines 25-44, the overall function of the machine is to enable a single, accordion-folded continuous sheet to be drawn from a stack, processed, and then re-stacked using the same creases as in the original stacking. The explicit purpose of slip in the rollers 38, 40 in Reeder is to *avoid disturbing the original creases*, so that the single sheet can be re-stacked in accordion fashion. The operation of the Reeder apparatus can be summarized by Figure 2 of Reeder, as annotated:



As mentioned in the rejection, Reeder mentions the use of a clutch and the idea of limiting torque in the general application of sheet handling. Significantly, however, the rollers 38, 40 do not function as crease rolls, in the manner of the claimed invention; and there is **no suggestion** that a **plurality of sheets** would ever be driven by rollers 38, 40. Indeed, the passage cited in the original rejection is emphatic that the slip element discussed therein applies specifically to the problem of folding a *single, continuous sheet*:

By adjusting the nut 80 to exert varying forces upon the friction pads 74, the clutch can be adjusted to slip over a range of different torques. Thus, with this clutch arrangement the degree of slippage between the roller 38 and the **continuous document 13** [clearly a *single* sheet in Figure 2] may be controlled to prevent displacement of the document 13 and also to control the **tension placed** on the continuous document 13 as a function of document 13 itself by the rollers 28, 30, 38 and 40 as it passes over the hump 38. (emphasis, notation added)

A person of ordinary skill in the art reading this passage, or any other part of Reeder, would see **no** suggestion that the use of a slip element or clutch would be useful in the problem of folding *multiple sheets*, such as in a booklet, where there is a danger of sheets slipping *against each other* and thus crumpling the booklet.

Retaining creases in a *single, pre-folded* sheet, which is the whole point of Reeder, is a **fundamentally different purpose** than *folding multiple unfolded* sheets into a *booklet*; and for this reason, the citation of Reeder is inapposite to claim 1.

The secondary reference, Hamilton, is directed to a “buckle-chute paper folding apparatus.” The overall operation of Hamilton can be followed in Figure 5-8 of Hamilton: a single sheet to be folded is drawn between rollers 54, 56 and then sharply creased by rollers 58, 60, which are driven by gears 76, 78 (column 4, lines 23-25). A person of skill in the art would not see therein a teaching that limiting the torques between rollers 58, 60, such as with a clutch, is for any reason desirable. For this reason, one cannot combine the teaching of Hamilton with the clutch of Reeder, which once again is not remotely directed to folding sheets into booklets.

A third reference, Wakabayashi, discloses the use of a blade to insert a plurality of sheets between pairs of entrained rollers, thereby folding the plurality of sheets. However, there is no teaching in Wakabayashi, *nor is there maintained to be such teaching in the rejection*, that there should be a slip element, or any kind of torque limiting, associated with the apparatus or the action of folding.

In overview, the cited references cannot be combined to show claim 1 (and its dependent claims) as obvious because there is no suggestion to combine their respective teachings:

1. The claimed invention recites the use of a slip element in folding a **set** of sheets into a booklet. The slip element is useful because, in such a context, sheets can slide against *each other*, causing crumpling.

2. The **only** cited reference showing the use of a slip element is Reeder. Reeder is directed specifically to *avoiding disturbing pre-existing* folds or creases in

a *single sheet*. Reeder has no teaching or suggestion of **creating** folds in **multiple** sheets, as would be required to create a booklet.

3. None of the other references teach the desirability of a slip element in the context of folding a booklet. Therefore, Reeder cannot be combined with any other reference to show claim 1 as obvious.

There is simply no suggestion in any of the cited art that a slip element would be useful in folding a set of sheets into a booklet. Absent that teaching, the references cannot be combined to show the claimed invention is obvious.

B. Claims 6-12 Would Not Have Been Obvious Over Reeder in View of
Hamilton and Wakabayashi

Claims 6-11 are rejected under 35 U.S.C. §103 in view of Reeder and Hamilton, which was discussed above. As mentioned by the Examiner in the Final Rejection, Claim 6, from which the other claims are dependent, is similar to claim 1, discussed above, except that claim 6 is a method claim in which torque is limited, as opposed to the presence of a “slip element” as in claim 1. Nonetheless, claim 6 recites folding a *plurality* of sheets through a nip formed by *crease rolls*, which is not disclosed in Reeder, and therefore claim 6 is patentable over Reeder for the same reasons given with regard to claim 1 above. Claims 7-11 are deemed patentable as being dependent from claim 6.

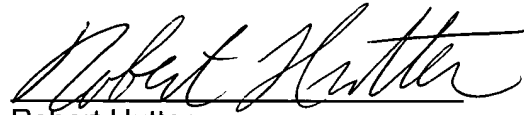
Claim 12 is rejected under 35 U.S.C. §103 over Reeder in view of Wakabayashi. Wakabayashi is cited to show the use of a blade. Claim 12 is a method claim reciting similar elements (“torque limiting” instead of a “slip element”)

as claim 1 above, and is patentable over the references for the same reasons given above with regard to claim 1.

VIII. CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1, 3-12 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of claims 1, 3-12.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Robert Hutter", written over a horizontal line.

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Filed: August 2, 2005

CLAIMS APPENDIX

CLAIMS INVOLVED IN THE APPEAL:

1. (Previously Presented) An apparatus for folding sheets, comprising:
 - a first crease roll, disposed on a first axle;
 - a second crease roll, disposed on a second axle;
 - the first crease roll and second crease roll being arranged to form a nip therebetween;
 - a first drive member disposed on the first axle;
 - a second drive member disposed on the second axle, engaging the first drive member;
 - a slip element operatively disposed between the second drive member and the second axle and
 - a movable blade for pushing a plurality of sheets through the nip, thereby folding the sheet.
2. (Cancelled)
3. (Original) The apparatus of claim 1, wherein the first drive member is a first gear and the second drive member is a second gear engaging the first gear.
4. (Original) The apparatus of claim 1, wherein the slip element is a slip clutch.
5. (Original) The apparatus of claim 1, wherein the slip clutch includes a Belleville washer.

6. (Previously Presented) A method of folding a plurality of sheets using an apparatus including a first roll and a second roll arranged to form a nip therebetween, comprising:

transmitting a torque from the first roll to the second roll;

urging the plurality of sheets through the nip, thereby folding the sheets into a folded set of sheets; and

limiting the transmitted torque as a result of an effective change in frictional coefficient between the first roll and the second roll, thereby limiting sliding between sheets as the sheets pass through the nip.

7. (Original) The method of claim 6, further comprising

providing a first drive member associated with the first roll and a second drive member associated with the second roll, the second drive member engaging the first drive member.

8. (Original) The method of claim 7, wherein the first drive member is a first gear and the second drive member is a second gear engaging the first gear.

9. (Original) The method of claim 7, the limiting step including permitting a slip between the second drive member and the second roll.

10. (Original) The method of claim 7, the limiting step including permitting a slip between the first drive member and the first roll.

11. (Original) The method of claim 6, further comprising

urging a plurality of sheets through the nip simultaneously, thereby folding the sheets.

12. (Original) The method of claim 6, further comprising

advancing a blade to urge the at least one sheet through the nip.

EVIDENCE APPENDIX

NONE

RELATED PROCEEDINGS APPENDIX

NONE